International Business Management 11 (2): 478-489, 2017
ISSN: 1993-5250
© Medwell Journals, 2017

The Effect of Management Commitment, Safety Rules and Procedure and Safety Promotion Policies on Nurses Safety Performance: The Moderating Role of Consideration of Future Safety Consequences

Munir Shehu Mashi, Chandrakantan A/l Subramaniam and Johanim Binti Johari
College of Business, Universiti Utara Malaysia, 06010 Sintok, Kedah, Darul Aman, Malaysia

Abstract: This study suggests that Consideration of Future Safety Consequences (CFSC) would moderate the relationship between safety promotion policies, management commitment and safety rules and procedures on nurse's safety performance. Using Social Exchange Theory (SET) and Construal Level Theory (CLT), data was obtained among 229 nurses from Abuja secondary health facilities, Nigeria. Results from partial least squares analysis shows that management commitment positively relates to safety compliance and safety participation and safety promotion policies positively relates to safety participation. Conversely, the relationship between safety promotion policies and safety compliance was not established in this study. Likewise the relationship between safety rules and both safety compliance and participation were not supported. Additionally, CFSC moderates the relationships between safety rules and procedures and nurses safety participation. This study offers empirical evidence in the support of CFSC as a moderator. This contributes to the utility of SET and CLT. Furthermore, to optimally enhance safe hospitals environment, management should give nurse's safety high priority and provide incentives for safety to the nurses and pay closer attention to nurses CFSC in developing an intervention on how increase nurses safety behavior.

Key words: Safety rules and procedures, consideration of future safety consequences, safety promotion policies, safety compliance, safety participation, nurses

INTRODUCTION

Nurse's safety in every hospitals is an important issue given the high risk nature of hospitals environment. Hospitals injuries and accidents cause enormous amount of nurse's lives and damage hospital property every year (Zhou and Jiang, 2015). While saving patient's lives, nurses regularly encountered with daily exposures which consist of: physical, biological and chemical exposures (Nixon *et al*., 2015). Physical hazards might be environmental conditions that may give rise to falls or cuts. Biological hazards on the other hand, range from exposure to blood-borne pathogens such as HIV/AIDS, hepatitis among others as a result of injecting, drawing or suturing of blood from the patients (Perry *et al*. 2003). Chemical hazards comprises nurse's contact with dangerous agents such as carcinogens and toxic (Ford and Tetrick, 2008). Repot from American Nurses Association have it that in the year 2011 alone, 40% of nurses have various degrees of injuries. The consequence of these hospitals injuries remains considerable challenge to the hospitals such as high insurance premiums paid to insurer, nurses early retirements and loss of skilled nurses among others. For instance, nurses annual back injuries only has been estimated to cost 16 billion dollars in worker's compensation benefits, nurse turnover costs among others (White, 2010). Nigeria also is not immune to these issues given the nature of hospital safety issues in Africa (Akinwale and Olusanya, 2015). For instance, Federal Capital Territory Administration (FCTA) stated that over 100 nurses suffered Hepatitis B and HIV/AIDS due to needle stick injuries. As the country is aspiring to accomplish its Vision 20:2020, the Vision mirrors the nation to be amongst the world leading economy in the year 2020 hospitals injuries and diseases that may harm productive nurses deserve special attention.

Even though hospitals used safety as only engineering issue, recently various researchers and practitioners have found the significant of managerial and organizational factors in hospitals injuries and accident prevention and management (Clarke and Ward, 2006; Cooper, 2015; Mawardi, 2003; Pousette *et al*., 2008; Zohar and Luria, 2005; Zhou and Jiang, 2015; Zohar *et al*., 2015). One of the managerial factors of interest to researchers and practitioners is safety rules and procedures which involves a set of reports that communicate to nurses what

Corresponding Author: Munir shehu mashi, College of Business, Universiti Utara Malaysia, 06010 Sintok, Kedah, Darul Aman, Malaysia

actions can be done or cannot be done and conditions to do this in order to accomplish hospital safety (Leplat, 1998). This factor is used in this study because is regarded as an important leading indicator of safety (Christian *et al*., 2009; Sinelnikov *et al*., 2015) and increase workers positive behavior towards safety (Lu and Yang, 2010).

Management commitment to safety is an important management practice which consist of the worker's perceptions of hospital management effort to carry out safety programs and methods used for hospital injuries and accident prevention. We chose this factor because is considered as a key leading safety indicator of safety (Beus *et al*., 2016) and aid in increasing nurses behaviors towards desire safety (Zohar, 2010).

Another vital leading safety indicator is safety promotion policies which involves the motivating factors in eliciting employee behavior to comply with safety rules and avoid unsafe act based on the rewards and incentives from hospital management. In safety literature, there is a call to combine personality variables to moderate safety promotion policies, management commitment and safety rules and procedures with workers safety performance (Christian *et al*., 2009) due the lack of consistence findings in the literature (Lu and Yang, 2011; Vinodkumar and Bhasi, 2010). This inconsistency in the findings calls for more studies to investigate possible moderators to elucidate these relationships (Baron and Kenny, 1986).

This study addresses this research gap by examining significant personality variable theoretically vital that may influence the relationships between safety promotion policies, management commitment, safety rules and procedures and nurses safety performance Consideration of Future Safety Consequences (CFSC) which Probst *et al*. (2013) define as the "degree to which employees consider the future versus immediate consequences of their safety-related behaviors". Specifically, in this study we investigate the moderating role of CFSC on relationships between management commitment to safety, safety promotion policies, safety rules and procedures and nurses safety performance among nurses in Abuja secondary health facilities in Nigeria.

In this study, we argued that CFSC will moderate the above relationships for the following reasons: firstly, the prior studies summited Consideration of Future Consequences (CFC) has an effect on the employee's behavior of violating the workplace rules and procedures (Takemura and Komatsu, 2013). Secondly, study has presented high CFC employees reported higher intentions in helping others (safety participation) (Maki *et al*., 2016). Hence, we argued that by incorporating these variable will offer further evidence to practitioners on how to improve safety performance in the hospitals. Such that, the relationships between management commitment to safety, safety promotion policies, safety rules and procedures and nurses safety performance are expected to be stronger for the nurses high in CFSC than for nurses who are low in CFSC. In doing so, we contribute to the general safety literature and contributes to hospitals safety research and we provide additional evidence on the utility of CFSC as a vital construct for hospitals managements to apply to enhance nurse's safety. Henceforth, the goals of this study are twofold: to investigate the influence of safety promotion policies, management commitment to safety and safety rules and procedures on nurse's safety performance and to assess the moderating effects of CFSC on the relationships.

Literature review

Safety performance: Earlier empirical studies in an effort to understand safety performance actual statistical data or number of injuries were used or self-reported injuries. Conversely, number of injuries recorded in the organizations are reactive measures of performance because they mirror the occurrences of safety failures (Glendon and Litherland, 2001). Due to the above mentioned shortcomings, several studies used workers safety behavior in an effort to understand workplace safety performance (Hon *et al*., 2014). Workers safety behavior "refers to the employee rational reactions to dangerous external stimuli which conform to safety procedures to achieve the desired security objectives" (Zhang *et al*., 2015). In other words, it is defined as "the safety-related actions or behaviors that workers exhibit in almost all types of work to promote their safety and that of others" (Burke and Signal, 2010). Beus *et al*. (2016) defined safety performance behavior "as any workplace behaviors that affect the likelihood of physical harm to persons".

Worker safety compliance and participation are the key components of safety behavior used in Griffin and Neal (2000) model that defined the actual behaviors workers show in the workplace (Griffin and Neal, 2000) which they drawn from the two main components of general job performance from Borman and Motowidlo (1993) task performance and contextual performance safety compliance was used as task performance and therefore refers to the core activities that workers carry out to preserve safety at work. In other words is defined

as "generally mandated" behaviors (Neal *et al*., 2000). In this context it is regarded as adhering to hospital rules in essential hospital safety activities. These behaviors includes following standard work procedures or wearing personal protective gear (Neal and Griffin, 2006). While safety participation is the "behaviors that do not directly contribute to an individual's personal safety but that do help to develop an environment that supports safety'' (Neal and Griffin, 2006). Example of safety participation comprises voluntarily participating in safety activities, attending safety meetings, or helping colleagues with safety-related matters (Neal and Griffin, 2006).

Management commitment to safety: Management commitment remained the most important safety management practice across sectors and countries and is the most commonly used safety indicator of workers shared perceptions concerning the safety priority in the workplace (Flin *et al*., 2000). Management commitment to safety is defined as ''the extent to which management is perceived to place a high priority on safety and communicate and act on safety issues effectively" (Neal and Griffin, 2004). The significance of management commitment lies in its important effects on organization's safety strategies or competing demand between production and safety (Zohar, 1980, 2010). If managements value hospital safety and communicated necessary information to nurses and demonstrate their commitment such as provision of workers with PPE, nurses are expected to comply with safety in the organization (Christian *et al*., 2009).

When top management are perceived to give a high commitment to safety matters, nurses in this case may possibly meet top managers anticipations by using positive safety behavior. Volume of researchers in safety literature reported significant positive relationship between management commitment and workers safety behavior in both western and Asian countries (Refaie, 2013; Gershon *et al*., 2000; Hofmann and Morgeson, 1999; Hofmann and Stetzer, 1996; Naveh *et al*., 2005). Therefore, empirical evidence provide strong support of management commitment link to safety behavior (compliance and participation). Therefore, we hypothesized that:

- H_{1a}: management commitment to safety is positively related to safety compliance
- H_{1b}: management commitment to safety is positively related to safety participation

Safety promotion policies: Another important safety management practice is safety promotion policies and has been established to provide a strong culture for safety and can lead to reduce injuries in the hospitals (Zohar and Luria, 2005). Welander defined Safety promotion "as a process that aims to ensure the presence and maintain the conditions that are necessary to reach and sustain an optimal level of safety". Safety promotion policies will be discussed in this context as a motivating factor in eliciting nurse's behavior to comply with safety rules and avoid unsafe act in the hospitals based on the rewards and incentives from management as is considered as a significant part of successful safety program (Griffin *et al*., 2014).

Early empirical studies demonstrated that safety incentives reduce injuries and fatalities in the organization (McAfee and Winn, 1989). Similarly, safety incentives are related with improve workers safety behavior and safety outcomes such as reduction of injuries and accidents (Goodrum and Gangwar, 2004; Haines *et al*., 2001). Therefore we hypothesized that:

- H_{2a}: safety promotion policies is positively related to safety compliance
- H_{2b}: safety promotion policies is positively related to safety participation

Safety rules and procedures: Employee's compliance with safety rules and procedures is a significant safety management practices of an organization (Vinodkumar and Bhasi, 2010). Hu *et al*., (2016) opined that "while information technology is often introduced by organizations to achieve productivity goals, safety rules and procedures are introduced to achieve safety goals". Leplat (1998) defines safety rules as a set of reports that communicate to employees what actions can be done or cannot be done and conditions to do this in order to accomplish workplace safety. Therefore, the objectives of safety rules are precisely to ensure safety compliance. Following safety rules and procedures by the management as well as the employees are prerequisite for any successful safety organization (Nordlof *et al*., 2015). It is important for organization to have safety policy which is the degree with which an organization makes a clear mission, accountabilities, set acceptable behavior for employees to ensure workers safety compliance (Lu and Yang, 2010) since, the present of safety policy demonstrates the management commitment to safety (Zohar and Luria, 2005).

Various empirical evidence reported that lack of workers following safety rules and procedures is associated with injuries and accidents in the organization (Hale and Borys, 2013). For instance, Laurence (2005)

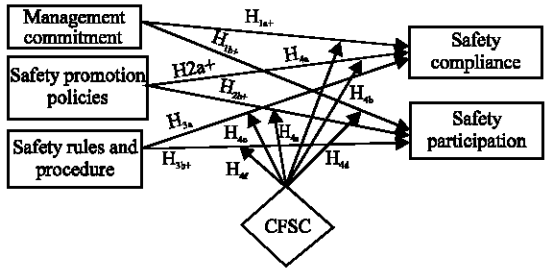

Fig. 1: Conceptual framework

conducted a study among the mine workers and recommends that high levels of injuries is as a result of workers violation of safety rules. On the other hand, compliance with safety rules and procedures is related with positive safety behavior and negatively associated with injuries (Neal and Griffin, 2006; Vinodkumar and Bhasi, 2010). Volume of the empirical studies have shown that organizations with strong safety rules and procedures can benefited from employee's positive safe behaviors (Fernandez *et al*., 2012; Lu and Yang, 2010). Hospitals with written safety procedures, rules and policies recorded improved safety performance. Marekidentified implementation of a safety policy as a decisive factor in accident and injury prevention in an effort to examine the employee risk perceptions among various work groups in the UK offshore installation. Since, literatures reported positive relationship between this factor and moderate these relationships. These relationships are shown in Fig. 1.

The framework in Fig. 1 is supported by two theories i.e., Social Exchange Theory (SET) (Blau, 1964) and Construal Level Theory (CLT) (Liberman and Trope, 1998). The SET "is one of the most influential conceptual paradigms for understanding workplace behavior" (Cropanzano and Mitchell, 2005). The major principles of SET is the interchange of commitments between nurses and hospital management over time (Blau, 1964). When a hospitals demonstrates a willingness to make hospitals safe for nurses, the nurses are plausibly indulge by engaging in more desirable safety behavior and likely reduce undesirable behavior. In the present study we theoretically applied this theory to explain the direct relationships between safety promotion policies, management commitment to safety and safety rules and procedures and nurses safety performance (Neal and Griffin, 2006). When hospital pay roper attentions for nurses safety (i.e., the hospitals management are committed to safety and provide incentives for safety), the nurses are possibly to develop implied obligations to do their duties, using behavior useful to the hospitals. When hospital management make safety rules and procedures clear to nurses, the nurses would therefore carried out their task safely which then results in desire safety performance.

Construal Level Theory (CLT) (Liberman and Trope, 1998) on the other hand posits that nurses have distinctive psychological relations with events and objects grounded on perceived social and temporal distances, taking along a remarkable wrinkle to the discussion of nurse's safety actions. According to this theory, nurses construe distant future events using abstract representations. In contrast, nurses who choose their actions thinking only about immediate events using concrete term (Liberman and Trope, 1998). This theory is widely used in an effort to understand individual's decision over time in the area of psychology (e.g., Fujita and Sasota, 2011). Drawing from CLT (Liberman and Trope, 1998), this study identify CFSC as plausible moderator that permit further examination of safety promotion policies, management commitment to safety and safety rules and procedures and nurses safety performance relationships.

MATERIALS AND METHODS

Sample and data collection: We employed quantitative research method using questionnaires test the hypothesize model. We selected four health facilities that were randomly selected using cluster sampling technique out of 12 secondary health facilities. About 317 questionnaires were distributed and 229 questionnaires were returned and used which make the response rate of 72%. The 229 response is enough for this study going by the G*power requirement, the minimum sample size of 172 is required. Since, the model had a 4 predictors and 6 interactions, we set the effect size as medium (0.15) and required power of 0.95. The data was collected by the researcher and the assistance of two research assistance. This study was approved by the health and human services of the FCT.

Data analysis technique: The use of Structural Equation Modelling (SEM) for safety research and related area is increasing over the years (Neal and Griffin, 2006). The Partial Least Squares (Smart PLS Version 2 Software) was utilized in this study to examine the constructs reliability and validity. The present study used PLS because the tool has the likelihood of providing accurate computations of moderating effect because its accounts for error (Hair *et al*., 2014).

Measures: Four items adopted from Neal *et al*. (2000) were used to measure safety compliance. The items reported internal consistency reliability of 0.94. Sample items include: "I carry out my work in a safe manner" and

"I use all the necessary safety equipment to do my job". Four items adopted from Neal and Griffin (2000) were used to measure safety participation. The items reported internal consistency reliability of 0.89. Sample items include: "I promote the safety program within the organization" and "I voluntarily carry out tasks or activities that help to improve workplace safety". Six items adapted from Probst *et al.* (2013) were used to measure CFSC. The items reported internal consistency reliability of 0.71. Sample items include: "even though accidents reporting can take a lot of time and effort, it helps other workers in the future" and "I sometimes need to compromise safety in order to meet service delivery".

Nine items adapted from Vinodkumar and Bhasi (2010) were used to measure management commitment. Internal consistency reliability of the items was 0.86. Sample items include: "my hospital provides sufficient personal protective equipment for the employees" and "safety is given high priority by the management". Five items adapted from Vinodkumar and Bhasi (2010) were used to measure safety rules and procedures. Internal consistency reliability of the items was 0.81. Sample items include: "the safety rules and procedures followed in my hospital are sufficient to prevent incidents occurring" and "the facilities in the safety department are not adequate to meet the needs of my organization". Five items adapted from Vinodkumar and Bhasi (2010) were used to measure safety promotion policies. Internal consistency reliability of the items was 0.64. Sample items include: "in my hospital safe conduct is considered as a positive factor for job promotions" and "in my hospital employees are rewarded for reporting safety hazards (thanked, cash or other rewards, recognition in newsletter, etc). All the items in this section were measured using 5 point Likert scale ranging from 1= strongly disagree to 5 = strongly agree.

RESULTS AND DISCUSSION

Respondent's profile: Based on the demographics characteristics of the respondents, majority of the nurses are females 69% (n = 157) while male comprised of 31% (n = 72) of the respondents. Majority of the respondents 29.8% (n = 59) were of Hausa ethnic group, 22.3% (n = 51) of the participants are from Yoruba ethnic group, 16.6% (n = 38) among the respondents were from Igbo ethnic group and the remaining 33.6% (77) were from other minority ethnic groups. The mean age the respondents was 40 years and the respondent's mean years of experience as healthcare worker was 14 year. Also, the respondents mean organizational tenure was 5 year.

Descriptive statistics: Table 1 shows the descriptive statistics which include the constructs means and standard deviations for descriptive purposes. As presented in Table 1 the mean value of all the constructs ranged between 3.256 and 4.138.

Table 1: Mean, standard deviation of the study variables

Variables	Mean	SD
Safety compliance	3.256	0.784
Safety participation	3.975	0.566
Safety promotion policies	3.864	0.417
Safety rules and procedures	3.612	0.549
Management commitment	4.022	0.483
Consideration of future	4.138	0.546
Safety consequences	-	-

Common method variance: Common Method Variance (CMV) arises when all the data were collected from a single source which is likely to negatively influence the validity in a given research (Podsakoff *et al.*, 2003). Firstly, we used numerous procedural remedies to reduce the effects of CMV in the present study based on the suggestion of Podsakoff *et al.* (2003) such as informing the participants there is no right or wrong answer and we guarantee confidentiality of their answers. Secondly, we reversed coded some questions (Podsakoff *et al.*, 2003). In addition to the procedural remedies applied above, we conducted a principal component factor analysis (Podsakoff *et al.*, 2003). The output shows that the first factor accounted only 17.77% of the variances and no single factor accounted for >50% of the variance (Podsakoff *et al.*, 2003) signifying that CMV may not be a problem in the present study.

Measurement model evaluation: To evaluate the measurement model in this study two types of validity were assessed. Firstly, we assessed the convergent validity and secondly, discriminant validity was assessed. Convergent validity is determined by examining the composite reliability, loadings and Average Variance Extracted (AVE) (Gholami *et al.*, 2013). As reported from Table 2 and 3 each construct has achieved the loadings above 0.7, Composite Reliability (CR) of all the constructs were all higher than 0.7 and Average Variance Extracted (AVE) is above 0.5 as recommended by Hair *et al.* (2014) (Table 3).

The discriminant validity (the extent to which items measure distinct concepts) was assessed following the Fornell and Larcker (1981) criterion by comparing the square root of the AVE with the correlations among constructs (Table 4). As shown from Table 3, the square root of the AVEs (values in bolded) on the diagonals were greater than the corresponding row and column values indicating the measures were discriminant. Therefore, both the two types of validity in this study were achieved.

Structural model evaluation: Since, the study achieved the measurement model criteria in term of constructs reliability and validity we evaluated the structural model to evaluate the hypothesized relationships

Table 2: Loadings and cross loadings

Models	CFSC	MCS	COM	PAR	SPP	SRP
CFSC1	0.7465	-0.0628	0.1681	0.1707	-0.0043	0.0993
CFSC2	0.8135	-0.0257	0.1105	0.2135	0.1296	0.0226
CFSC3	0.7331	0.0288	0.0011	0.2308	0.0812	-0.0899
CFSC4	0.7081	-0.0492	0.1825	0.1627	-0.0252	0.0912
CFSC5	0.7901	0.0129	0.1395	0.1807	0.1005	0.0618
CFSC6	0.7385	-0.0080	0.0083	0.1663	0.0439	-0.1203
COM1	-0.0135	0.2414	0.7523	0.1280	-0.0175	-0.0328
COM2	0.2276	0.2905	0.8399	0.3604	0.0068	0.1170
COM4	0.0647	0.2588	0.7669	0.2299	0.0575	0.0922
MCS1	-0.0184	0.8114	0.2654	0.2497	0.0879	0.1313
MCS2	0.0275	0.7872	0.2808	0.2740	0.0909	0.1514
MCS3	-0.0222	0.8028	0.2441	0.2565	0.0752	0.1097
MCS4	-0.0509	0.8354	0.2875	0.3147	0.2594	0.0946
MCS5	-0.0217	0.8633	0.2841	0.3316	0.2704	0.0837
MCS6	-0.0363	0.8526	0.3038	0.3251	0.2386	0.1084
PAR2	0.1728	0.2966	0.2920	0.7745	0.148	0.1403
PAR3	0.2366	0.2647	0.3016	0.8331	0.1558	0.0988
PAR4	0.1962	0.3075	0.2096	0.8311	0.1898	0.0648
SPP1	0.0724	0.2234	0.0256	0.1946	0.9848	-0.0274
SPP3	0.0728	0.2172	0.0094	0.2078	0.9618	-0.0070
SPP4	0.0643	0.1825	0.0257	0.1872	0.9670	-0.0629
SRP1	-0.0170	0.0647	0.0589	0.0540	-0.1149	0.8847
SRP2	-0.0467	0.1486	0.1350	0.1139	-0.0504	0.9229
SRP3	0.0511	0.1120	0.0924	0.0824	0.0006	0.8980
SRP4	0.0511	0.1416	0.0653	0.1450	-0.0110	0.9517
SRP5	0.0947	0.1176	0.0378	0.1379	-0.0026	0.896

Bold values are loadings for items which are above the recommended value of 0.5

Table 3: Convergent validity of measurement model

Construct	Item	Loadings	AVE[a]	Cr[b]
CFSC	CFSC1	0.7465	0.5712	0.8886
	CFSC2	0.8135		
	CFSC3	0.7331		
	CFSC4	0.7081		
	CFSC5	0.7901		
	CFSC6	0.7385		
Management commitment	MCS1	0.8114	0.6821	0.9279
	MCS2	0.7872		
	MCS3	0.8028		
	MCS4	0.8354		
	MCS5	0.8633		
	MCS6	0.8526		
Safety compliance	COM1	0.7523	0.6198	0.8299
	COM2	0.8399		
	COM4	0.7669		
Safety participation	PAR2	0.7745	0.6616	0.8542
	PAR3	0.8331		
	PAR4	0.8311		
Safety promotion	SPP1	0.9848	0.9434	0.9804
	SPP3	0.9618		
	SPP4	0.967		
Safety rules	SRP1	0.8847	0.8299	0.9606
	SRP2	0.9229		
	SRP3	0.898		
	SRP4	0.9517		
	SRP5	0.8961		

[a]AVE = (summation of squared factor loadings)/(summation of squared factor loadings) (summation of error variances); [b]Composite reliability = (square of the summation of the factor loadings)/[(square of the summation of the factor loadings)+(square of the summation of the error variances)]

(Hair *et al*., 2014). As presented in Table 5 and Fig. 2, we evaluated the beta values and the t-values

Table 4: Discriminant validity of measurement model

Constructs	CFSC	MCS	COM	PAR	SPP	SRP
CFSC	0.756					
Management Commitment	-0.026	0.826				
Safety compliance	0.146	0.337	0.787			
Safety participation	0.248	0.356	0.328	0.813		
Safety promotion	0.072	0.214	0.021	0.203	0.971	
Safety rules	0.029	0.136	0.090	0.124	-0.033	0.911

Diagonals (in bolded) represent the square root of the Average Variance Extracted (AVE) while the off-diagonals are correlations among constructs. Diagonal elements should be larger than off-diagonal elements in order to establish discriminant validity

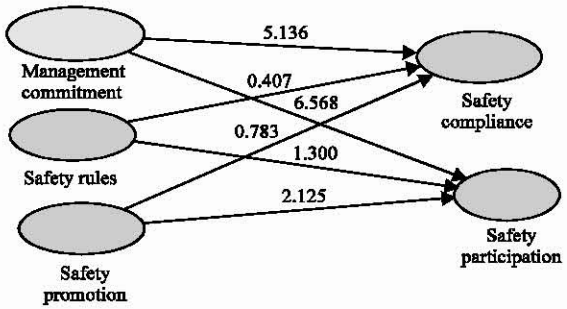

Fig. 2: Structural model of the direct effect

(Hair *et al*., 2014). The t-values were calculated using bootstrapping procedure with 5000 resamples. Additionally, we calculated the predictive relevance (Q^2) of the model and effect sizes of each predictors on the dependent variables (f^2) (Hair *et al*., 2014). In testing the hypothesized relationships, the significance levels were set at $p<0.001$ and $p<0.05$ (1-tailed) (Hair *et al*., 2014).

Result of the direct effect: Firstly we looked at the direct effect of the three predictors on nurse's safety behavior (safety compliance and participation) as presented in Table 5 and Fig. 2. We found management commitment was positively related to safety performance both safety compliance ($\beta = 0.342$, $t = 5.136$, $p<0.01$) and participation ($\beta = 0.316$, $t = 6.568$, $p<0.01$). Therefore supporting hypothesis H1a and H1b. safety p romotion was also positively related to safety participation ($\beta = 0.138$, $t = 2.129$, $p<0.05$) supporting hypothesis H_{2b}. In contrasts, the relationships between safety rules and procedures and both safety compliance ($\beta = 0.0324$, $t = 0.407$, $p>0.05$) and participation ($\beta = 0.0861$, $t = 0.\ 1.300$, $p>0.05$) and the relationship between safety promotion policies and safety compliance ($\beta = -0.052$, $t = 0.782$, $p>0.05$) were not supported in this study. Therefore, hypothesis H_{3a}, H_{3b} and H_{2a} were not supported in this study.

Significantly, the result from Table 5 and Fig. 2 demonstrated that among the three predictors of safety

Table 5: Results of the structural model analysis (direct relationships)

Hypothesis	Relationships	Std. Beta	SE	t-values	Decision
H_{1a}	Management commitment->Safety compliance	0.3419	0.0666	5.1356**	Supported
H_{1b}	Management commitment->Safety participation	0.3162	0.0481	6.5679**	Supported
H_{2a}	Safety promotion->Safety compliance	-0.0521	0.0666	0.7824	Not supported
H_{2b}	Safety promotion->Safety participation	0.1382	0.0649	2.1294*	Supported
H_{3a}	Safety rules->Safety compliance	0.0324	0.0795	0.4072	Not supported
H_{3b}	Safety rules->Safety participation	0.0861	0.0662	1.3001	Not supported

**t>2.33 = p<0.01; *t>1.645 = p<0.05

Table 6: Results of the structural model analysis (moderating effects)

Hypothesis	Relationships	Std. Beta	SE	t-values	Decision
H_{4a}	Management commitment*CFSC->Safety compliance	0.370	0.644	0.574	Not supported
H_{4b}	Safety promotion*CFSC->Safety compliance	-0.089	0.094	0.941	Not supported
H_{4c}	Safety rules*CFSC->Safety compliance	0.112	0.136	0.826	Not supported
H_{4d}	Management commitment*CFSC->Safety participation	0.068	0.096	0.713	Not supported
H_{4e}	Safety Promotion*CFSC->Safety participation	0.084	0.094	0.901	Not supported
H_{4f}	Safety rules*CFSC->Safety participation	0.150	0.065	2.336**	Supported

**t value >2.33 =p<0.01; *t>1.645=p<0.05

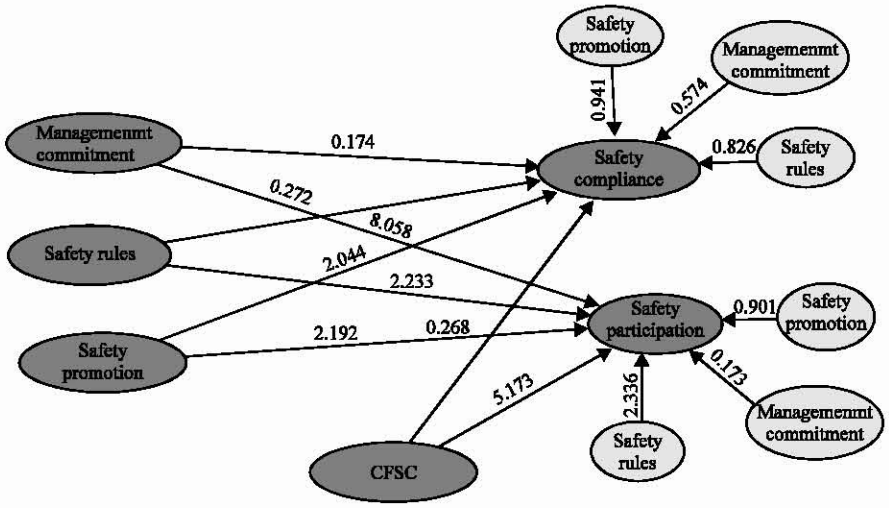

Fig. 3: Structural model with moderator

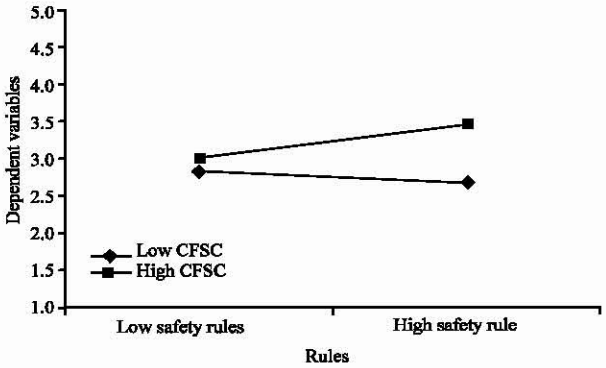

Fig. 4: Interaction effects Safety Rules*CFSC->Safety participation

Result of the interaction effect: Next we looked at the moderating effects of CFSC on the relationships between the predictors and criterion constructs in this study. A presented in Fig. 3 and Table 6, only H_{3f} was supported. The hypothesis stated that CFSC moderates the relationship between safety rules and procedures and safety participation ($\beta = 0.150$; $t = 2.336$, $p<0.01$).

Additionally, we used the recommendation of Dawson (2014) when moderator is continuous to draw the two-way interaction graph, the results of the path coefficients (β) were used to plot this relationship. Figure 4 indicated that the relationship between safety rules and procedures and safety participation is stronger (i.e., more positive) for nurses with high CFSC than nurses with low CFSC. This shows that safety participation increase for nurses when safety rules and procedures is high and CFSC is high. Specifically, safety rules and procedures leads to higher safety participative behavior when CFSC

is higher rather than low (Fig. 4). This recommends that hospitals where safety rules and procedures are clear for nurses and nurses with increased CFSC, safety participation can be enhanced.

In contrast, hypothesis 3a management Commitment* CFSC->safety (β = 0.370; t = 0.574, p>0.05), hypothesis 3b safety rules*CFSC->safety compliance (β = -0.089; t = 0.941, p>0.05), H_{3c} safety rules*CFSC->safety compliance (β = 0.112; t = 0.826, p>0.05), H_{3d} management commitment*CFSC->safety participation (β = 0.068; t = 0.713, p>0.05) and H_{3e} safety promotion*CFSC->safety participation (β = 0.084; t = 0.901, p>0.05) were not supported in this study. In other words CFSC was not found to moderate the relationships between these predictors and criterion variable in this study.

Another criteria for assessing the structural model is coefficient of determination (R^2). The R^2 of the safety compliance in this study was 0.15% which implied that safety promotion policies, management commitment to safety and safety rules and procedures collectively explained 15% of the variations in safety compliance. Also, R^2 of safety participation is 0.21 which implied that safety promotion policies, management commitment to safety and safety rules and procedures collectively explained 21% of the variations in safety participation. Chin (1998) classified R^2 of 0.19, 0.33 and 0.67 as weak, moderate and substantial respectively. Therefore, the R^2 values in this study can be classified as weak. This is considered acceptable based on the recommendation by Falk and Miller (1992) that 10% as acceptable R^2 value.

Another important criterion for evaluating a structural model is effect-size (f^2) which indicates the effect of particular exogenous latent variable on endogenous variable. Cohen *et al*. (1990) categorized f^2 of 0.02, 0.15 and 0.35 as small, medium, large respectively. The f^2 of the safety promotion policies, management commitment to safety and safety rules and procedures on safety compliance were 0.04, 0.09 and 0.001 which are small, small and none respectively. The f^2 of safety promotion policies, management commitment to safety and safety rules and procedures on safety participation were 0.02, 0.127 and 0.008 which are small, small and none, respectively. The f^2 of the moderators were 0.055 on safety compliance and 0.126 on safety participation which are small, respectively. The final assessment criterion is predictive relevance (Q^2) which is assessed using construct-cross validated redundancy. Therefore, Q^2 greater than zero indicates predictive relevance of a model (Geisser, 1974). Q^2 of safety compliance is 0.54 and for safety participation is 0.57 which are all greater than zero which indicates the model of the present study has predictive relevance.

The our research investigates the moderating effect of CFSC on the relationship between safety promotion policies, management commitment to safety and safety rules and procedures on nurse's safety performance in Nigeria. In detail, we also tested the direct relationships between safety promotion policies, management commitment to safety and safety rules and procedures on nurse's safety performance. While some of our results were supported as we hypothesized, some findings were not supported as we discuss below.

The finding from Table 5 and Fig. 2 indicated that a positive relationship exists between management commitment to safety and nurses safety behavior (safety compliance and participation thus, supporting H_{1a} and H_{1b}. This finding is consistent with previous research (Keffane and Delhomme, 2013; Naveh *et al*., 2005; Vinodkumar and Bhasi, 2010). The plausible reasons for this finding is that if hospitals focus on nurse's safety and engage in activities that make hospital environment safer such as providing them with PPE. Hospital are most assured to gain high benefits in terms of nurse's safety performance. Another possible reasons for this finding is that nurses might recognize hospital manager's commitment to their safety as evidence of hospitals commitment towards nurse's safety. Previous research by Vinodkumar and Bhasi (2010) and Mearns *et al*. (2010) also follow the same line of reasoning that the higher the organizational investment in safety and safety related activities the higher the employee loyalty in relations to safety compliance and participation.

The finding from Table 5 and Fig. 2 indicated that no relationship exists between safety rules and procedures and nurses safety behavior (safety compliance and participation) in this study. Resulting in rejecting H_{3a} and H_{3b}. The finding in this study is consistent with previous research (Glendon and Litherland, 2001; Lu and Yang, 2011). The plausible reasons why the relationship between safety rules and procedures and safety performance is not supported in the present study are: firstly, it is possible the nurses may not see the procedures as meaningful therefore they may not see the usefulness of these safety procedures and rules. Earlier work by Hu *et al*. (2016) in the mining company in Australia also indicated that if workers did not see the utility and meaningful of safety rules and procedure in the organization, it is likely to report non-compliance. Thus, it is significant for hospitals to recognize strategies to make sure safety rules and procedures are meaningful and that their significance are communicated to nurses (Hu *et al*., 2016). Another plausible reason why the relationship between safety rules and procedures and nurses safety behavior is not supported is likely the sample size was comparatively small related with the companion study such as Vinodkumar and Bhasi (2010) and the items may not capture the intended construct since the items are not industry specific. The items were adapted from chemical industry (Vinodkumar and Bhasi, 2010).

The finding from Table 5 and Fig. 2 indicated that a positive relationship exists between safety promotion policies and participation. Therefore, supporting H_{2b}. The finding in this study is consistent with previous research (Vinodkumar and Bhasi, 2010). This finding may be understood with a social exchange theory in which hospital that are perceived to place high value on safety promotion such as rewarding hazards reporting inform of thanked, cash or other rewards, may signify management that is committed to workers safety which is exchanged by nurse's readiness to participate in safety activities. In contrast we did not find any significant relationship between safety promotion policies and safety compliance. Therefore, hypothesis H_{2a} is not supported. This finding was in congruent with prior studies (Fernandez *et al*., 2012). The plausible reason why this relationship is not supported, safety promotion policies in these hospitals might be used mostly to rise the overall awareness about safety among the nurses rather than as contributory factor for safety compliance. Prior study of Vredenburgh summited that safety incentives is an important tool for creating safety awareness.

With regards to CFSC as moderator, Table 6 and Fig. 3 showed that CFSC moderates the relationship between safety rules and procedures and safety participation. Therefore supporting H_{4f}. This is in line with our postulation that the relationship between safety rules and procedures and safety participation will be stronger for nurses high in CFSC than the nurses with low CFSC as reported in Fig. 3. This finding is congruent with Construal Level Theory (CLT) (Liberman and Trope, 1998) that people construe distant future events using abstract representations or choose their behavior thinking only about immediate events using concrete term (Liberman and Trope, 1998). This finding indicates that safety participation increase for nurses when safety rules and procedures is high and CFSC is high. Specifically, safety rules and procedures leads to higher nurse's safety participative behavior when CFSC is higher rather than low. This suggests that hospitals where safety rules and procedures is high and nurses with increased CFSC, safety participation can be improved. The possible reason why this hypothesis is supported, the demographic statistics reported that the majority of the nurses are female. Zimbardo *et al*. (1997) reported that gender plays important role in employee orientation towards their future. Females are more future-oriented compared to the males. It is possible that given the majority of the nurses in this study are females may influence why CFSC moderate the relationships.

In contrast to our expectation $H_{4a\text{-}f}$ is not supported. We did not find the moderating role of CFSC on these relationships. The plausible reason why these hypotheses are not supported may be link to the context where the study was conducted. Even though high CFSC nurses have future concerns for their safety, they may not likely benefit from these future concerns when their expression of future consequences is constrained by the environment or context (Zhang *et al*., 2014).

CONCLUSION

The study examined the direct effect of safety promotion policies, management commitment to safety and safety rules and procedures on nurse's safety performance. The study also examined the moderating effect of CFSC on the relationship these relationships. Of the six direct relationships, three were supported. With regards to moderating hypothesis, only one is supported. Thus, the study recommends future research to explore CFSC as a moderator in other contexts. The findings in the present study offer strong empirical evidence for the antecedents of nurse's safety behavior in Abuja secondary health facilities Nigeria. These findings offer significant guidance for safety researchers and practitioners on how to improve safety in the hospitals.

IMPLICATIONS

The our findings is significant to both theory and practice. Theoretically, the findings presented the boundary conditions under which the influence of safety rules and procedures and nurse's safety participation can be improve. Our study also tested the utility of Social Exchange Theory (SET) (Blau, 1964) and Construal Level Theory (CLT) (Liberman and Trope, 1998) in safety context. From practical perspectives, since this result suggest that management commitment play a significant role in employee safety behavior. Therefore, one can believe that a committed management to ensure safe hospital environment is probable to provide useful changes in nurses towards positive safety behavior. This possibly will present a benefit for hospitals by maintaining a healthier status in the hospitals and improving their morale. To the management, it will reduce compensation cost, lower employee turn-over, reduce insurance premium, reduce lost time and provide efficient and motivated workers and consequently, improved hospitals productivity. The main implication of this paper is that even though safety rules and procedures is critical for keeping nurses safe, hospital management also need to consider nurses CFSC issues that may provide additional guide.

As in each empirical research, our findings is not without limitations. Therefore while interpreting the results, the following limitations can be taking into account. The present study adopted a cross-sectional research design. Hence, no causal inferences could be made to the population, such a statement of causal

inferences requires the collection of longitudinal data. Thus, future studies are suggested to use longitudinal research design to detect variations over time. Additionally, in our study safety behavior was measured using self-report measures which may be associated with social desirability bias (Grimm, 2010). There is likelihood that the nurses might have over-reported their safety behavior on the survey questionnaires. Therefore, future researchers may use other method to assess safety behavior. More specifically, supervisor ratings of nurse's safety behavior and/or peers reporting to control for the social desirability bias.

REFERENCES

Akinwale, A.A. and O.A. Olusanya, 2015. Implications of occupational health and safety intelligence in Nigeria. J. Global Health Care Syst., 6: 1-13.

Baron, R.M. and D.A. Kenny, 1986. The moderator-mediator variable distinction in social psychological research: Conceptual strategic and statistical considerations. J. Personality Social Psychol., 51: 1173-1182.

Beus, J.M., M.M.A. Cord and D. Zohar, 2016. Workplace safety a review and research synthesis. Organizational Psychol. Rev., 2016: 1-30.

Blau, P.M., 1964. Exchange and Power in Social Life. Transaction Publishers, USA., ISBN: 97814128231, Pages: 352.

Borman, W.C. and S.J. Motowidlo, 1993. Expanding the Criterion Domain to Include Elements of Contextual Performance. In: Personnel Selection in Organizations, Schmitt, N. and W. Borman (Eds.). Jossey-Bass, San Francisco, CA., USA., pp: 71-98.

Burke, M.J. and S.M. Signal, 2010. Workplace safety: A multilevel, interdisciplinary perspective. Res. Personnel Hum. Resour. Manage., 29: 1-47.

Chin, W.W., 1998. The partial least squares approach to structural equation modeling. Modern Methods Bus. Res., 295: 295-336.

Christian, M.S., J.C. Bradley, J.C. Wallace and M.J. Burke, 2009. Workplace safety: A meta-analysis of the roles of person and situation factors. J. Appl. Psychol., 94: 1103-1127.

Clarke, S. and K. Ward, 2006. The role of leader influence tactics and safety climate in engaging employee's safety participation. Risk Anal., 26: 1175-1185.

Cohen, A., M.J. Colligan, R. Sinclair, J. Newman and R. Schuler, 1998. Assessing Occupational Safety and Health Training. National Institute for Occupational Safety and Health, Cincinnati, Ohio, Pages: 145.

Cooper, D., 2015. Effective safety leadership: Understanding types and styles that improve safety performance. Prof. Saf., 60: 49-53.

Cropanzano, R. and M.S. Mitchell, 2005. Social exchange theory: An interdisciplinary review. J. Manage., 31: 874-900.

Dawson, J.F., 2014. Moderation in management research: What, why, when and how. J. Bus. Psychol., 29: 1-19.

Dorr, N., S. Krueckeberg, A. Strathman and M.D. Wood, 1999. Psychosocial correlates of voluntary HIV antibody testing in college students. A.I.D.S Educ. Prev., 11: 14-27.

Falk, R.F. and N.B. Miller, 1992. A Primer for Soft Modeling. The University of Akron Press, Akron, Ohio, ISBN-13: 9780962262845, Pages: 103.

Fernandez, M.B., P.J.M. Montes and O.C.J. Vazquez, 2012. Safety climate in OHSAS 18001-certified organisations: Antecedents and consequences of safety behaviour. Accid. Anal. Prev., 45: 745-758.

Flin, R., K. Mearns, P.O. Connor and R. Bryden, 2000. Measuring safety climate: Identifying the common features. Safety Sci., 34: 177-192.

Ford, M.T. and L.E. Tetrick, 2008. Safety motivation and human resource management in North America. Int. J. Hum. Resour. Manage., 19: 1472-1485.

Fornell, C. and D.F. Larcker, 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Market. Res., 18: 39-50.

Fornell, C. and D.F. Larcker, 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Market. Res., 18: 39-50.

Fujita, K. and J.A. Sasota, 2011. The effects of construal levels on asymmetric temptation-goal cognitive associations. Soc. Cognition, 29: 125-146.

Geisser, S., 1974. A predictive approach to the random effect model. Biometrika, Biometrika, 61: 101-107.

Gershon, R.R., C.D. Karkashian, J.W. Grosch, L.R. Murphy and A.E. Cejudo et al., 2000. Hospital safety climate and its relationship with safe work practices and workplace exposure incidents. Am. J. Infect. Control, 28: 211-221.

Gholami, R., A.B. Sulaiman, T. Ramayah and A. Molla, 2013. Senior manager's perception on green Information Systems (IS) adoption and environmental performance: Results from a field survey. Inf. Manage., 50: 431-438.

Glendon, A.I. and D.K. Litherland, 2001. Safety climate factors, group differences and safety behaviour in road construction. Saf. Sci., 39: 157-188.

Goodrum, P.M. and M. Gangwar, 2004. Safety incentives: A study of their effectiveness in construction. Prof. Saf., 49: 24-34.

Griffin, M.A. and A. Neal, 2000. Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge and motivation. J. Occup. Health Psychol., 5: 347-358.

Griffin, M.A., M.R. Hodkiewicz, J. Dunster, L. Kanse and K.R. Parkes et al., 2014. A conceptual framework and practical guide for assessing fitness-to-operate in the offshore oil and gas industry. Accid. Anal. Prev., 68: 156-171.

Grimm, P., 2010. Social Desirability Bias. Wiley, Hoboken, New Jersey, USA.,.

Haines, V.Y., G. Merrheim and M. Roy, 2001. Understanding reactions to safety incentives. J. Saf. Res., 32: 17-30.

Hair, J.F., G.T.M. Hult, C.M. Ringle and M. Sarstedt, 2014. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage Publication, Thousand Oaks, CA., USA., ISBN-13: 9781452217444, Pages: 328.

Hale, A. and D. Borys, 2013. Working to rule, or working safely? Part 1: A state of the art review. Saf. Sci., 55: 207-221.

Hofmann, D.A. and A. Stetzer, 1996. A cross level investigation of factors influencing unsafe behaviors and accidents. Personnel Psychol., 49: 307-339.

Hofmann, D.A. and F.P. Morgeson, 1999. Safety-related behavior as a social exchange: The role of perceived organizational support and leader-member exchange. J. Appl. Psychol., 84: 286-296.

Hon, C.K. A.P. Chan and M.C. Yam, 2014. Relationships between safety climate and safety performance of building repair, maintenance, minor alteration and addition (RMAA) works. Saf. Sci., 65: 10-19.

Hu, X., M.A. Griffin and M. Bertuleit, 2016. Modelling antecedents of safety compliance: Incorporating theory from the technological acceptance model. Saf. Sci., 87: 292-298.

Joireman, J., J. Anderson and A. Strathman, 2003. The aggression paradox: Understanding links among aggression, sensation seeking and the consideration of future consequences. J. Personality Soc. Psychol., 84: 1287-1302.

Joireman, J.A., 1999. Additional evidence for validity of the consideration of future consequences scale in an academic setting. Psychol. Rep., 84: 1171-1172.

Keffane, S. and P. Delhomme, 2013. Assessing the mediating role of communication in safety management and performance for road safety practices: French organizations model. Proc. Book, 1: 26-42.

Laurence, D., 2005. Safety rules and regulations on mine sites-the problem and a solution. J. Saf. Res., 36: 39-50.

Leplat, J., 1998. About implementation of safety rules. Saf. Sci., 29: 189-204.

Liberman, N. and Y. Trope, 1998. The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. J. Personality Soc. Psychol., 75: 5-18.

Lindsay, J.J. and A. Strathman, 1997. Predictors of recycling behavior: An application of a modified health belief model1. J. Appl. Soc. Psychol., 27: 1799-1823.

Lu, C.S. and C.S. Yang, 2010. Safety leadership and safety behavior in container terminal operations. Saf. Sci., 48: 123-134.

Lu, C.S. and C.S. Yang, 2011. Safety climate and safety behavior in the passenger ferry context. Accid. Anal. Prev., 43: 329-341.

Maki, A., P.C. Dwyer and M. Snyder, 2016. Time perspective and volunteerism: The importance of focusing on the future. J. Soc. Psychol., 156: 334-349.

Mawardi, A., 2003. The role of leadership styte and safety climate in predietirtg involvement as a safety change agent. Aust. J. Psych., 55: 137-137.

McAfee, R.B. and A.R. Winn, 1989. The use of incentives feedback to enhance work place safety: A critique of the literature. J. Saf. Res., 20: 7-19.

Mearnsa, K., L. Hopeb, M.T. Fordc and L.E. Tetrick, 2010. Investment in workforce health: Exploring the implications for workforce safety climate and commitment. Accident Analysis Prevention, 42: 1445-1454.

Naveh, E., K.T. Navon and Z. Stern, 2005. Treatment errors in healthcare: A safety climate approach. Manage. Sci., 51: 948-960.

Neal, A. and M.A. Griffin, 2004. Safety climate and safety at work. Psychol. Workplace Saf., 2004: 15-34.

Neal, A. and M.A. Griffin, 2006. A study of the lagged relationships among safety climate, safety motivation, safety behavior and accidents at the individual and group levels. J. Appl. Psychol., 91: 946-953.

Neal, A., M.A. Griffin and P.M. Hart, 2000. The impact of organizational climate on safety climate and individual behavior. Saf. Sci., 34: 99-109.

Nixon, A.E., J.J. Lanz, A. Manapragada, L.V. Bruk and A. Schantz et al., 2015. Nurse safety: How is safety climate related to affect and attitude?. Work Stress, 29: 401-419.

Nordlof, H., B. Wiitavaara, U. Winblad, K. Wijk and R. Westerling, 2015. Safety culture and reasons for risk-taking at a large steel-manufacturing company: Investigating the worker perspective. Saf. Sci., 73: 126-135.

Ouellette, J.A., R. Hessling, F.X. Gibbons, R.M. Bergan and M. Gerrard, 2005. Using images to increase exercise behavior: Prototypes versus possible selves. Personality Soc. Psychol. Bull., 31: 610-620.

Perry, J., G. Parker and J. Jagger, 2003. EPINet report: 2002 percutaneous injury rates. Adv. Occup. Health Psychol., 17: 268-278.

Podsakoff, P.M., S.B. MacKenzie, J.Y. Lee and N.P. Podsakoff, 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. J. Applied Psychol., 88: 879-903.

Pousette, A., S. Larsson and M. Torner, 2008. Safety climate cross-validation, strength and prediction of safety behaviour. Saf. Sci., 46: 398-404.

Probst, T.M., M. Graso, A.X. Estrada and S. Greer, 2013. Consideration of future safety consequences: A new predictor of employee safety. Accid. Anal. Prev., 55: 124-134.

Refaie, A.A., 2013. Factors affect companie's safety performance in Jordan using structural equation modeling. Saf. Sci., 57: 169-178.

Sinelnikov, S., J. Inouye and S. Kerper, 2015. Using leading indicators to measure occupational health and safety performance. Saf. Sci., 72: 240-248.

Strathman, A., F. Gleicher, D.S. Boninger and C.S. Edwards, 1994. The consideration of future consequences: Weighing immediate and distant outcomes of behavior. J. Personality Soc. Psychol., 66: 742-752.

Strathman, A., F. Gleicher, D.S. Boninger and C.S. Edwards, 1994. The consideration of future consequences: Weighing immediate and distant outcomes of behavior. J. Personality Soc. Psychol., 66: 742-752.

Takemura, T. and A. Komatsu, 2013. An Empirical Study on Information Security Behaviors and Awareness. In: The Economics of Information Security and Privacy, Rainer, B. (Ed.). Springer, Berlin, Germany, ISBN:978-3-642-39497-3, pp: 95-114.

Vinodkumara, M.N. and M. Bhasi, 2010. Safety management practices and safety behaviour: Assessing the mediating role of safety knowledge and motivation. Accident Anal. Prevention, 42: 2082-2093.

White, E., 2010. The elephant in the room: Huge rates of nursing and healthcare worker injury. Hampshire Nurs., 34: 18-18.

Zhang, J., J. Li and J. Zuo, 2015. The Determinants for Safety Behaviors of Migrant Construction Workers. In: Proceedings of the 19th International Symposium on Advancement of Construction Management and Real Estate, Liyin, S., Y. Kunhui and M. Chao (Esd.). Springer, Berlin, Germany, ISBN:978-3-662-46994-1, pp: 983-997.

Zhang, W., H. Wang and C.L. Pearce, 2014. Consideration for future consequences as an antecedent of transformational leadership behavior: The moderating effects of perceived dynamic work environment. Leadersh. Q., 25: 329-343.

Zhou, F. and C. Jiang, 2015. Leader-member exchange and employee's safety behavior: The moderating effect of safety climate. Procedia Manuf., 3: 5014-5021.

Zimbardo, P.G., K.A. Keough and J.N. Boyd, 1997. Present time perspective as a predictor of risky driving. Personality Individual Differences, 23: 1007-1023.

Zohar, D. and G. Luria, 2005. A multilevel model of safety climate: Cross-level relationships between organization and group-level climates. J. Applied Psychol., 90: 616-628.

Zohar, D., 1980. Safety climate in industrial organizations: Theoretical and applied implications. J. Applied Psychol., 65: 96-102.

Zohar, D., 2010. Thirty years of safety climate research: Reflections and future directions. Accident Analysis Prevention, 42: 1517-1522.

Zohar, D., Y.H. Huang, J. Lee and M.M. Robertson, 2015. Testing extrinsic and intrinsic motivation as explanatory variables for the safety climate-safety performance relationship among long-haul truck drivers. Transp. Res. Traffic Psychol. Behav., 30: 84-96.